

developed correlation, equations 9 and 10 are modified as follows:

Thomasville

$$\text{Log (CBR)} = 2.4 - 0.57 \text{ Log (PR, in mm/blow)}$$

Gold Hill

$$\text{Log (CBR)} = 2.55 - 14 \text{ Log (PR, in mm/blow)}$$

Comparing the laboratory and field data indicated that the laboratory-based model for Thomasville ABC overpredicts the field data and the Gold Hill ABC model seems to reasonably predict the field CBR values. However, and as shown in Figure 7.4, a discrepancy seems to appear in the field data and it is hypothesized that the measured field CBR values may not be a mere function of the PR of the ABC layer.

For example, the CBR corresponding to SR 2487 (Thomasville) was 78.2% at unconfined ABC-PR of 3.1 mm/blow while the CBR value for SR 2117 (Thomasville) was 179.3% at a higher unconfined ABC-PR value of 3.4 mm/blow. Further inspection of the test data reveals that the CBR data as measured in the field may not be only function of the PR (or the strength) measured for the ABC stone but also depends upon the thickness of the ABC stone specially when less than 152 mm (6 inches). In this case, the ABC thickness of SR 2487 was 89 mm (3.5 inches) compared to a thickness of 170 mm (6.7 inches) for SR 2117, which had higher field CBR value. Based on the stress distribution of a two-layer profile, as presented by Fox (1948), the stress bulb extends to a distance 2-3 times the diameter of the loaded area. In this case, the diameter of the CBR piston was 51 mm for a zone of influence of approximately 100-150 mm. Such a zone of influence will encompass a part of the subgrade in case of SR 2487. Accordingly, and even though the ABC-PR values for the two roads were comparable, the lower CBR value for SR 2487 can be explained by having PR-subgrade of 39.4 mm/blow for SR 2487 versus a value of 7.4 mm/blow for SR 2117.